

Coating Identification, Inspection, and Evaluation Technologies

Group 3

Chairs

Robert (Bob) Smith (DOT)

Suresh Babu (EWI)

Three major topics are defined as following.

- Identification: Define the problem
 - Making sure that there is a coating problem as opposed to assuming that there is a coating performance problem.
- Inspection: Characterize the problem
 - Techniques to characterize the problem, where, when
- Evaluation: Evaluate the impact of the problem
 - Make sure that what we detect is a problem
 - Now what do we do about it?
 - Solution is not covered here – hand off to Group 4.

Identification: Priorities

- How big is the problem that coating failure leads to pipeline performance? (Knowledge)
 - Economics
 - Risk
 - Statistics
- Collection of life-cycle data (Knowledge and Standards)
 - Material
 - Construction
 - Transportation
 - Operational
 - Environmental
- Techniques to identify of disbonded and shielding locations (Tools)
 - New and existing pipes

Inspection: Priorities

- Better techniques characterize flaws (Tools)
- Modeling the inspection techniques (Knowledge and Tools)
 - Optimization of inspection
- Training to prevent damage (Knowledge and Standards)
 - Matt's pictures on failures

Evaluation & Assessment Priorities

- Establish evaluation standard (Knowledge, Tools and Standards):
 - How to evaluate what is a good coating?
 - Validate the evaluation
 - Validate manufacturer claims
- Re-evaluate the minimum standards (Knowledge and Standards)
 - Is the current minimum standard good enough?
 - Documentation of the life-cycle data
- Welding and coatings communications (Knowledge, Standard)
 - Implication of interactions needs to be understood
- Develop Smart coatings (Tools)
 - May be the focus of group 1; but the coating should be designed so that it will aid in the identification, inspection and evaluation easily.

Summary

- How big is the problem?
 - We need to make a convincing case.
- We need to make sure that “best” coating goes into specific application which minimizes repair.
 - Pro-active design for specific environment

Identification: All issues

- Training – Standards
- Poor Records
 - Basic Parameters of Coatings
 - Basic Parameters of defects
- Reducing Digs or minimize dig size (size, key hole)
- Minimize damage during
- Disbond – defects and no defects
- Failure modes
- Modeling life cycle of coating integrity
- Improve the detection of disbond and shielding
 - Sometimes lack of cathodic protection may be the problem
- Information sharing
 - Data structure, fields of data
 - Standard

Inspection – All issues

- Modeling
- Improve GUT / Emag
- Training
- Limiting Digs
- Preventing damage while inspection
- Data
 - Standardization, collection, sharing, flaw sizing and bond strength
- Develop / improve infield bond assessment and technology (real time)

Evaluation and Assessment: All issues

- How good is the standard?
 - Is it very discriminative or strict?
 - Are standards use in beginning, good enough – minimum standard?
- Data
 - Define/standards
- Risk
- Economic
- Validating manufacturing application claims
- Smart coatings

Identification, Inspection, Evaluation and Assessment must be integral part of life-cycle.

